PROCEEDINGS OF THE

ROYAL ENTOMOLOGICAL SOCIETY

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ORDINARY MEETING

WEDNESDAY, 6th MAY, 1959, at 5.30 p.m. (Tea 5 p.m.)

AGENDA

1. Confirmation of the Proceedings of the Ordinary Meeting held on 1st April, 1959.
2. Recommendations of candidates for Fellowship. First reading.
3. Recommendations of candidates for Fellowship. Second reading.
4. Announcement of election of new Fellows.
5. Additions to the Library [see p. 11].
6. Admission of Fellows.
7. Papers accepted for publication in the *Transactions*.
8. Exhibits.
9. Communications.

(1) Dr. R. C. Rainey

Air currents and the behaviour of air-borne insects : Locusts.

[ABSTRACT]

In the interpretation of field observations on locust flight, studies of the associated air-currents, vertical as well as horizontal, have been found not only to throw light on the part played by these air movements in the effects observed, but also to contribute to a better understanding of the behaviour of the locusts themselves. Observations on thermal up-currents and other vertical air movements, for example, have not only provided evidence of the way in which the height of flight, density and detailed structure of flying swarms are affected by the same process of atmospheric turbulence which is of such importance in the dispersal of smaller insects ; such studies have also made possible a rough quantitative assessment of the part played by gregarious behaviour in the maintenance of swarm cohesion. Thus for a particular *Schistocerca* swarm in Kenya, which maintained an approximately constant area of 60 sq. Km. during a displacement of 370 Km. over a period of nine days, the potentially disruptive effects of atmospheric turbulence and of diversity of orientation were estimated to have required a net excess of inwardly directed flight, of the order of 10 per cent. of the total individual flying time, to maintain the observed cohesion of the swarm.

(2) **Mr. L. R. Taylor**

Air currents and the behaviour of air-borne insects : Aphids.

[Abstract]

The vast majority of insects are small, about the size of aphids. Speed of flight is limited by size, and aphids, along with many other insects, fly at less than 1 m./sec. (2·2 m.p.h.). A wind of this speed is only detectable by careful observation, and winds below this value are rare in this country except at night, within a few centimetres of the ground, or in the shelter of vegetation. On most occasions, therefore, aphids must actively avoid flight in the open or they will be widely dispersed by the turbulent motion of air moving in excess of their own flight speed. Some aphids do avoid moving air by avoiding bright light. Most insects that fly by night also avoid wind-directed dispersal in the same way. But the majority of day-flying small insects have a chance of dispersal by this means. This does not mean that they are " lost " or " wasted ". Newly moulted aphids of many species have a strongly developed behaviour pattern that encourages this method of dispersal and there is evidence that many other insects are dispersed in a similar way.

NOTICES

The next meeting will be held on *Wednesday, 3rd June*, 1959 :

(1) **Mr. M. F. Claridge.**—Some closely allied species of the genus *Eurytoma* (Hymenoptera : Eurytomidae).

(2) **Dr. D. J. Lewis.**—Some biting flies of British Honduras.

Proceedings of the Ordinary Meeting held on 1st April, 1959

Dr. B. P. Uvarov, C.M.G., F.R.S., President, in the Chair.

Present, 45 Fellows and 2 Visitors.

Before the meeting formally opened, the President announced that Professor O. W. Richards had been elected to the Fellowship of the Royal Society.

The Minutes of the Ordinary Meeting held on 4th March were confirmed and signed by the President.

The names of the following candidates for election were read for the first time : Mr. Muhammad Zahurul Alam ; Mr. Prakash Nath John, M.Sc. ; Mr. Laurence Alfred Mound ; Dr. Ayyadevara Mohan Rao, Ph.D., B.Sc., M.S. ; and Mr. Ian James Wyatt.

For the second time (taken as read) : Mr. Michael Antony Cornes ; Mr. Joseph Firmin ; Dr. Charles Joseph Goodall ; Mr. William Ronald Kellett ; Mr. William Percy Langridge ; Mr. Peter Henry Langton ; Mr. William Ivan St. George Light ; Mr. Keith Kerr Reid ; and Miss Janina H. B. Schlesinger, B.Sc., A.R.C.S.

The Secretary read the names of the following newly elected Fellows of the Society: Mr. Zaven Stephen Ariyan, B.Sc., Peel Park Technical College, Salford, 5, Lancs.; Dr. Huai C. Chiang, University of Minnesota, Duluth, Minnesota, U.S.A.; Mr. Philip John Clare Hawkins, 7 Titmus Drive, Tilgate, Crawley, Sussex; Mr. Guy Malcolm Spooner, M.B.E., M.A., Fiveoaks, Crapstone, Yelverton, Devon; Mr. Alexander John Wiley, Veterinary Research Laboratory, P.O. Kabete, Kenya; and Mr. Anthony Egerton Wright, 9 Albert Court, Kensington, London, S.W.7.

Thanks were voted to donors of gifts to the Library since the last meeting.

Mr. Z. S. Ariyan, Mr. R. Edwards and Mr. B. M. Swan signed the Obligation Book and were admitted Fellows of the Society.

Dr. E. J. Popham gave a paper on the respiration of Corixidae, an abstract of which appeared on page 5.

In the discussion which followed Dr. Popham said, in reply to an enquiry by Mr. R. W. J. Uffen, that he could not suggest why Hagemann's organ need be so complex when a group of sensitive hairs might be equally effective.

Dr. J. D. Carthy enquired as to the nature of the chamber behind the lobe, to which Dr. Popham replied that it separated the lateral thoracic trunk from the lateral chamber, and was ennervated from the mesothoracic segment.

Professor O. W. Richards having asked what brought *Corixa* towards the surface in the dark, Dr. Popham explained that by the time it was ready to surface there was still sufficient gas to make the insect buoyant, whereas in daylight it actively swam upwards to reach the surface quickly, so as to spend as short a time as possible away from the bottom.

To a question by the President enquiring whether flight usually occurred at night, Dr. Popham replied that the stimulus to migration occurred mostly during the day time. It was true that large numbers of *Corixa* were taken in light traps, but they had then actually already been in flight for some time.

Professor Richards asked how long the insects remained *in cop.* Dr. Popham said that he had no definite information, but he could go so far as to say at least half an hour at 18° C., during which time they normally surfaced at least twice. He also added, in reply to the President, that he had no evidence of the possible maximum range of flight.

PAUL FREEMAN, *Honorary Secretary.*

ADDITIONS TO THE LIBARY

Presented

Kidd, L. N., & Brindle, A. *The Diptera of Lancashire and Cheshire.* Pt. 1. 8vo. Arbroath: Lancs. & Cheshire Fauna Committee, 1959. [Dr. W. D. Hincks.]

Stoneham, H. F. *The Butterflies of western Kenya, with notes on allied forms.* Pt. 4–5. *Pieridae.* 8vo. Kitale: Stoneham Museum Publ., 1958. [The Author.]

Walker, E. M. *The Odonata of Canada and Alaska.* Vol. 2, Pt. III. *The Anisoptera—four families.* 8vo. Toronto: Univ. Pr., 1958; London: O.U.P., 1959. [Oxford University Press.]

Purchased

Fridén, A. *Coleopterfaunan i Tärna.* 8vo. Lund, 1956. [*Opusc. ent., Suppl.* **13.**]

Hanstrom, B., *& others South African animal life. Results of the Lund University expedition in* 1950–51. Vol. 5. 8vo. Stockholm: Almqvist & Wiksell, 1958.

Mackay, M. R. *Larvae of the North American Olethreutidae* (*Lepidoptera*). 8vo. Ottawa, 1959. [*Canad. Ent., Suppl.* **10.**]

Metcalf, Z. P., *ed. General catalogue of the Homoptera.* Fasc. IV. *Fulgoroidea.* Pt. 11–18. 8vo. Raleigh, N.C., 1954–58.

Willemse, C. Synopsis of the Acridoidea of the Indo-Malayan and adjacent regions (Insecta, Orthoptera). *Publ. natuurh. Genootsch. Limburg* **4** : 41–114, 1951.

In addition, separates have been presented by Captain K. J. Hayward; East African Virus Research Institute, Entebbe; Entomology Laboratory, Canada Department of Agriculture, Belleville; Mr. E. P. Wiltshire; University of Michigan; Director, E.A.T.R.O., Tororo; Mr. R. Hartland-Rowe; Mr. A. N. Brangham; Dr. E. Collyer; Dr. T. T. Macan; Editor, *Shell Trinidad*; United States Department of Agriculture; Mr. W. H. Potts; Mr. J. E. H. Blackie; Dr. F. L. Vanderplank; Mr. I. F. B. Common; Mr. L. C. Scaramuzza; South African Institute of Medical Research; Mr. N. C. E. Miller; Mr. D. Leatherdale; Mr. D. Boocock; Dr. J. L. Harrison; Dr. R. L. Kahn and Dr. Wallace Peters.

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